

NEW SPECIES OF *NEOTRICHIA*  
(TRICHOPTERA: HYDROPTILIDAE) FROM  
CENTRAL AND SOUTH AMERICA

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*Abstract.*—The males of nine new species of *Neotrichia* (Trichoptera: Hydroptilidae) from Central and South America are described and illustrated: *N. colmillosa* (Venezuela), *N. browni* (Venezuela), *N. cuernuda* (Venezuela), *N. arista* (Venezuela), *N. dintera* (Venezuela), *N. botonia* (Venezuela), *N. negroensis* (Venezuela), *N. flowersi* (Panama), and *N. colombiensis* (Colombia).

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*Neotrichia* is a widely distributed New World genus, occurring throughout North, South and Central America. Adults of this genus are recognized by their small size, tibial spur formula of 0, 2, 3, presence of ocelli, and mesoscutellum lacking a transverse suture (Marshall, 1979). In the review of Marshall (1979), the genus contained 45 species in six species groups. Since this publication, 24 additional species have been described from the United States (Kelley and Harris, 1983; Harris, 1985), Mexico (Malicky, 1980; Bueno and Hamilton, 1986), Cuba (Botosaneanu, 1980), and austral South America (Flint, 1980, 1982, 1983; Angrisano, 1986). This paper adds nine more species to the total and makes species names available for several faunistic compilations underway in South America. With the additional species, the species groups of Marshall (1979) are in need of revision and are not utilized in this paper.

Morphological terminology generally follows that of Marshall (1979). Type material is deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

***Neotrichia colmillosa*, new species**

Fig. 1

*Diagnosis.* This species appears to be most similar to *N. filifera* Flint in the long, lateral processes from the ninth segment. The bilobed subgenital plate and curving spines of the phallus serve to differentiate the new species.

*Description.* Male: Length 1.5 mm. 18 antennal segments. Brown in alcohol. Ninth abdominal segment in lateral view with anterior margin rounded, posteroventral margin produced into a long, narrow lobe; posterodorsal margin with long, thin processes which crisscross, in dorsal and ventral views; pair of small lobes on dorsum each bearing seta. Segment X membranous and fused with segment IX; slightly emarginate in dorsal view. Subgenital plate bilobed in ventral aspect, each sclerotized lobe thin and emarginate along inner surface. Inferior appendages short and narrow in both lateral and ventral views; widely separate basally, tapering apically and curving outward in ventral aspect. Phallus with large lateral hook near middle of

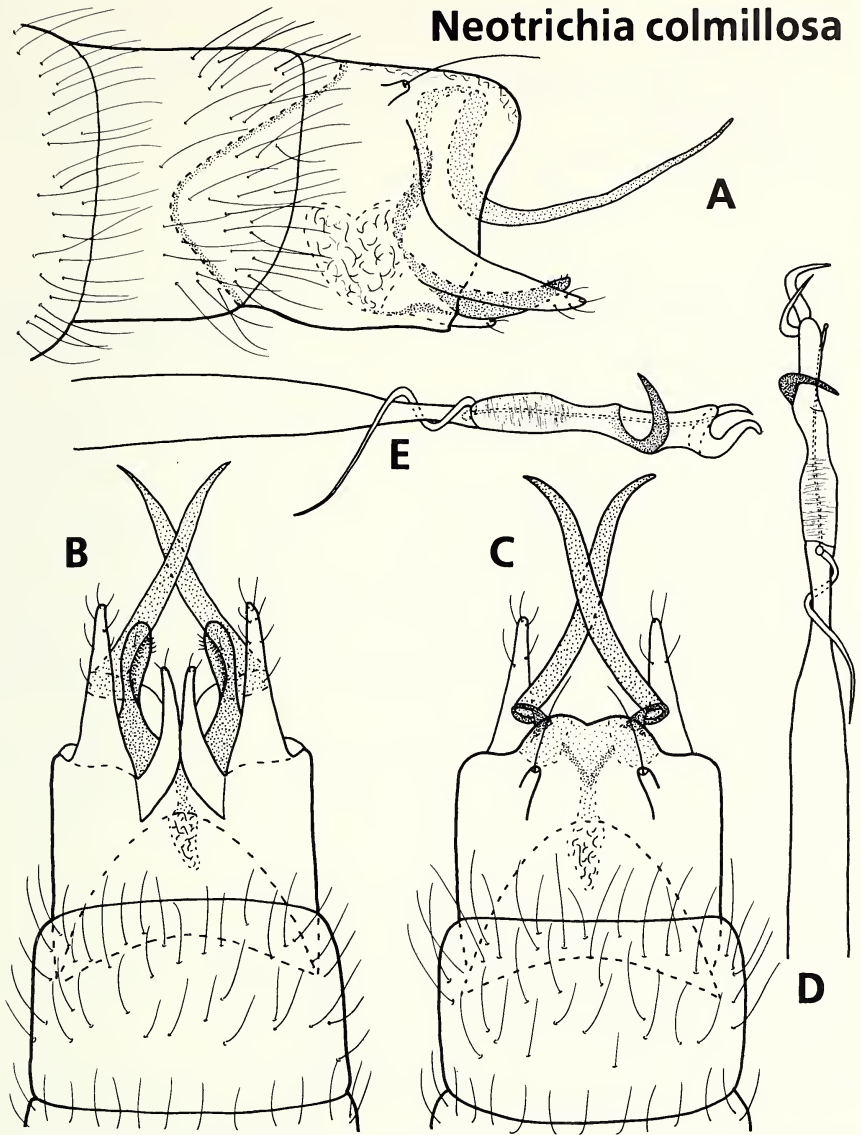


Fig. 1. *Neotrichia colmillosa*. Male genitalia: A, lateral; B, ventral; C, dorsal; D, phallus, dorsal; E, phallus, lateral.

distal portion and two narrow hooks at apex; thin paramere encircling shaft and extending anteriorly.

*Type material.* Holotype: Male, Venezuela, Territorio Federal Amazonas, Cerro de la Neblina basecamp, 0°50'N, 66°9'W, 140 m, 24 November–1 December 1984, R. L. Brown.

*Etymology.* Spanish, having tusks.

### ***Neotrichia browni*, new species**

Fig. 2

*Diagnosis.* This species is most similar to *N. colmillosa* in general genitalic features. Both have long lateral processes from the dorsum of the ninth segment and similarly shaped subgenital plates, but the phallus of *N. browni* lacks the prominent distal hooks of *N. colmillosa*.

*Description.* Male: Length 1.6 mm. 18 antennal segments. Brown in alcohol. Ninth abdominal segment in lateral view with anterior margin rounded, posteroventral margin produced into a long, truncate lobe; posterodorsal margin with long processes which curve ventrally in lateral view and crisscross in dorsal view; pair of small lobes dorsally, each bearing seta. Segment X fused with segment IX, produced into two triangular lobes distally. Subgenital plate bilobed in ventral aspect, each lobe thin and curving inward, apex of each with numerous short spines. Inferior appendages short and narrow in lateral and ventral views; widely separate basally, tapering apically and converging distally in ventral aspect. Phallus with distal portion tapering apically, apex curved into narrow hook; paramere encircling shaft and extending posteriorly.

*Type material.* Holotype: Male, Venezuela, Territorio Federal Amazonas, San Carlos de Río Negro, 1°56'N, 67°03'W, 13–17 December 1984, R. L. Brown.

*Etymology.* Named for Dr. Richard L. Brown, the collector of much of the material from Venezuela.

### ***Neotrichia cuernuda*, new species**

Fig. 3

*Diagnosis.* With *N. colmillosa* and *N. browni*, this species shares the elongate posterodorsal processes of the ninth segment. It differs from these species in the structure of the subgenital plate and inferior appendages.

*Description.* Male: Length 1.8 mm. 18 antennal segments. Brown in alcohol. Ninth abdominal segment in lateral view with anterior margin rounded, posterodorsal margin produced into a long, thin, straight process; posteroventral margin produced into two narrow processes, upper more lateral in position and longer than lower; pair of lobes dorsally, each bearing seta. Segment X fused with segment IX, rounded distally with mesal notch. Subgenital plate prominent, dome-shaped in ventral view, with narrow apex bearing pair of setae; in lateral view tapering to acute apex which bends ventrad. Inferior appendages appearing bifid; in lateral view outer portion narrow at base, widening apically, inner portion narrow over entire length; in ventral view, outer portion curving laterad in lower third then caudad, slightly tapering to apex which abruptly bends outward, inner portion of appendage narrow, widely separate basally, tapering to apex. Phallus darkly sclerotized in distal half, parallel

**Neotrichia browni**

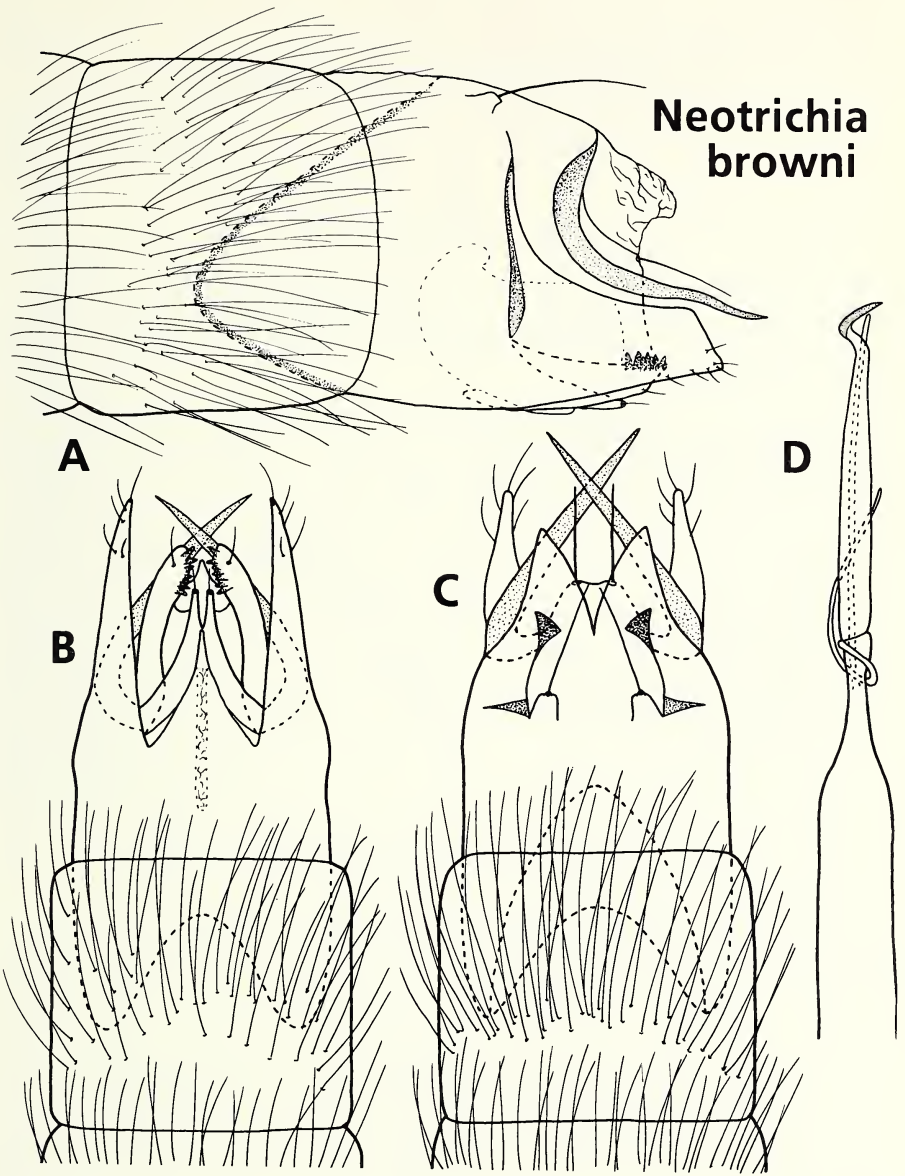


Fig. 2. *Neotrichia browni*. Male genitalia: A, lateral; B, ventral; C, dorsal; D, phallus, dorsal.

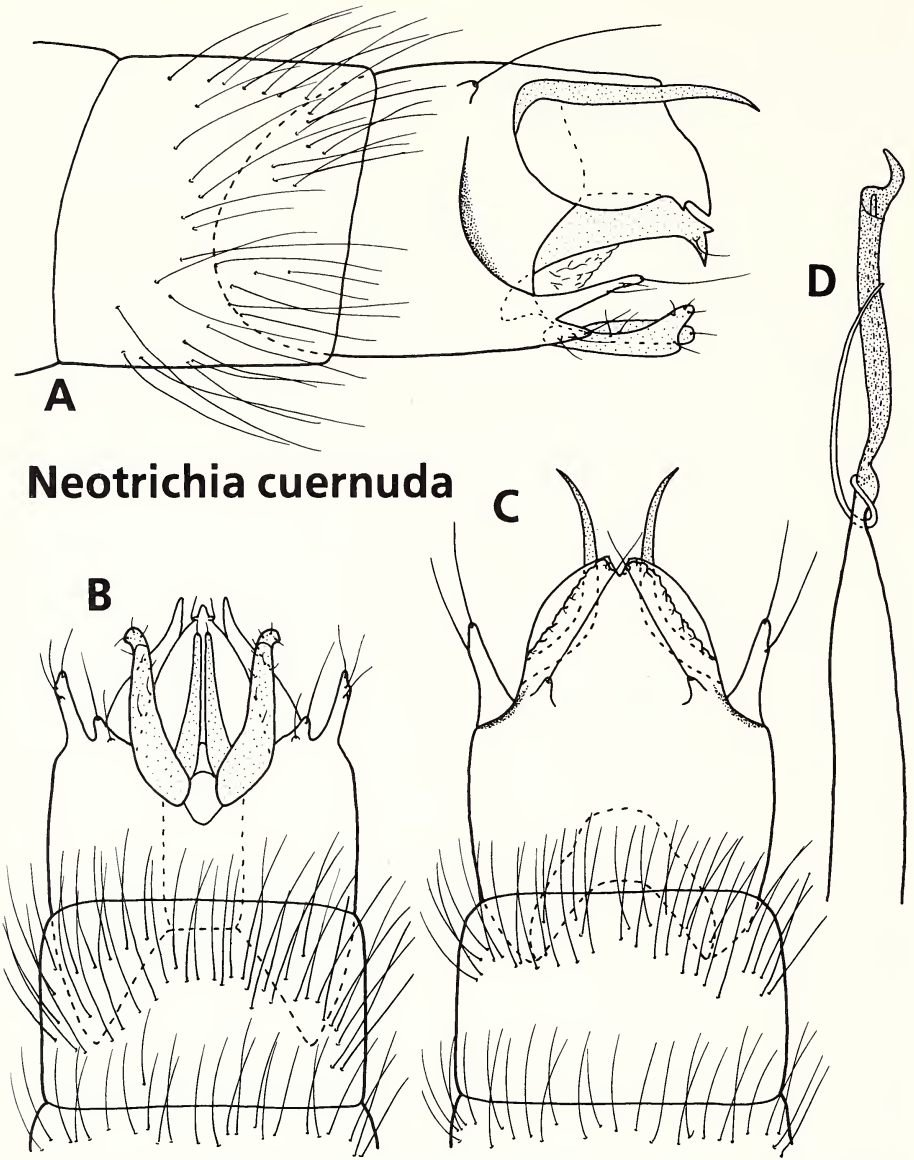


Fig. 3. *Neotrichia cuernuda*. Male genitalia: A, lateral; B, ventral; C, dorsal; D, phallus, dorsal.



sided and ending with a short hook; paramere encircling shaft and extending posteriorly.

*Type material.* Holotype: Male, Venezuela, Territorio Federal Amazonas, Agua Blanca, Cerro de la Neblina, 0°49'N, 66°08'W, 160 m, 20–21 March 1984. O. S. Flint, Jr. and J. A. Louton.

*Etymology.* Spanish, having horns.

#### ***Neotrichia arista*, new species**

Fig. 4

*Diagnosis.* This species is most similar to *N. alata* Flint and *N. tertia* (Mosely) in the dorsolateral processes of the ninth segment and the lateral bracteoles. The folding of these dorsolateral processes and the complex phallic structure differentiate *N. arista*.

*Description.* Male: Length 1.7 mm. 18 antennal segments. Brown in alcohol. Ninth segment in lateral view with ridge-like posterodorsal projection which is sclerotized and folded at midlength, anterior margin tapered and extending through segment VIII; bracteoles posteroventrally, about half length of segment X, rectangular in shape with rounded apex. Segment X fused with IX, elongate and membranous apically. Subgenital plate in ventral aspect with mesal incision apically. Inferior appendages sclerotized; in lateral view wide basally, narrowing to apex; in ventral view generally elongate-oval in shape, wide at base, curving inward and narrowing apically, notched on mesal margin near apex. Phallus complex in distal half with much infolding, heavy internal spine at midlength visible in lateral view; paramere extending posteriorly.

*Type material.* Holotype: Male, Venezuela, Territorio Federal Amazonas, Río Cataniapo, 10 km S Puerto Ayacucho, 9 March 1984, O. S. Flint, Jr. Paratype: same data as holotype, 1 male.

*Etymology.* Spanish, ridge, referring to the ridgelike extension of the ninth segment.

#### ***Neotrichia dientera*, new species**

Fig. 5

*Diagnosis.* This species has some similarity to *N. caxima* (Mosely) in the acute spine projecting from the ninth segment and the lack of bracteoles. However, *N. dientera* lacks the paired phallic spines of *N. caxima*.

*Description.* Male. Length 1.2–1.6 mm. 18 antennal segments. Brown in alcohol. Ninth segment in lateral view with elongate, lateral spine on posteromesal margin, three excisions on posteroventral margin, anterior margin rounded and short, barely extending into segment VIII. Segment X fused with IX, membranous with numerous longitudinal folds laterally. Subgenital plate short, rounded apically in ventral view. Sclerotized inferior appendages rectangular in lateral view; in ventral view trapezoidal and fused laterally with segment IX. Phallus with distal portion tapering to apex, sclerotized projection arising near midlength and extending to apex, ejaculatory duct protruding apically; paramere encircling shaft and extending posteriorly.

*Type material.* Holotype: Male, Venezuela, Territorio Federal Amazonas, San Carlos de Río Negro, 1°56'N, 67°03'W, 13–17 December 1984, R. L. Brown. Paratypes: same data as holotype, 11 males.

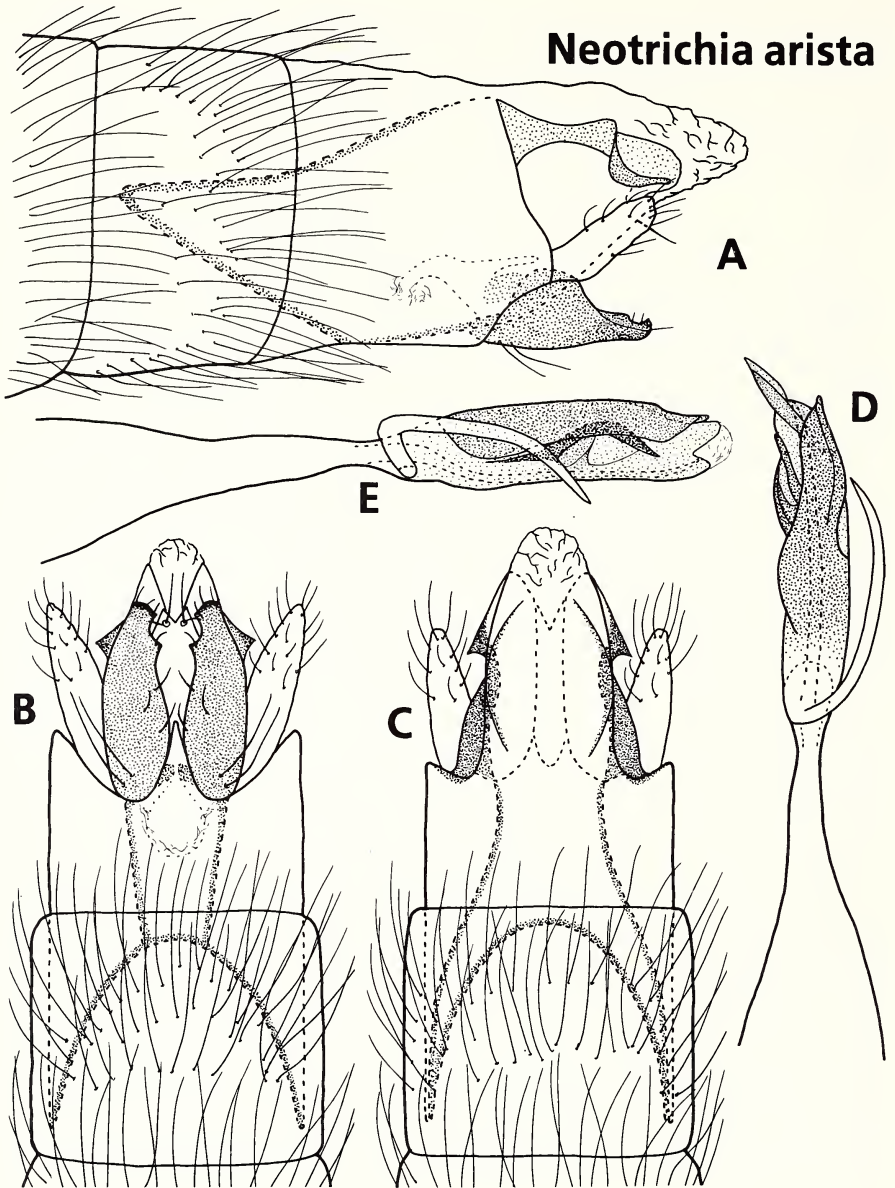


Fig. 4. *Neotrichia arista*. Male genitalia: A, lateral; B, ventral; C, dorsal; D, phallus, dorsal; E, phallus, lateral.

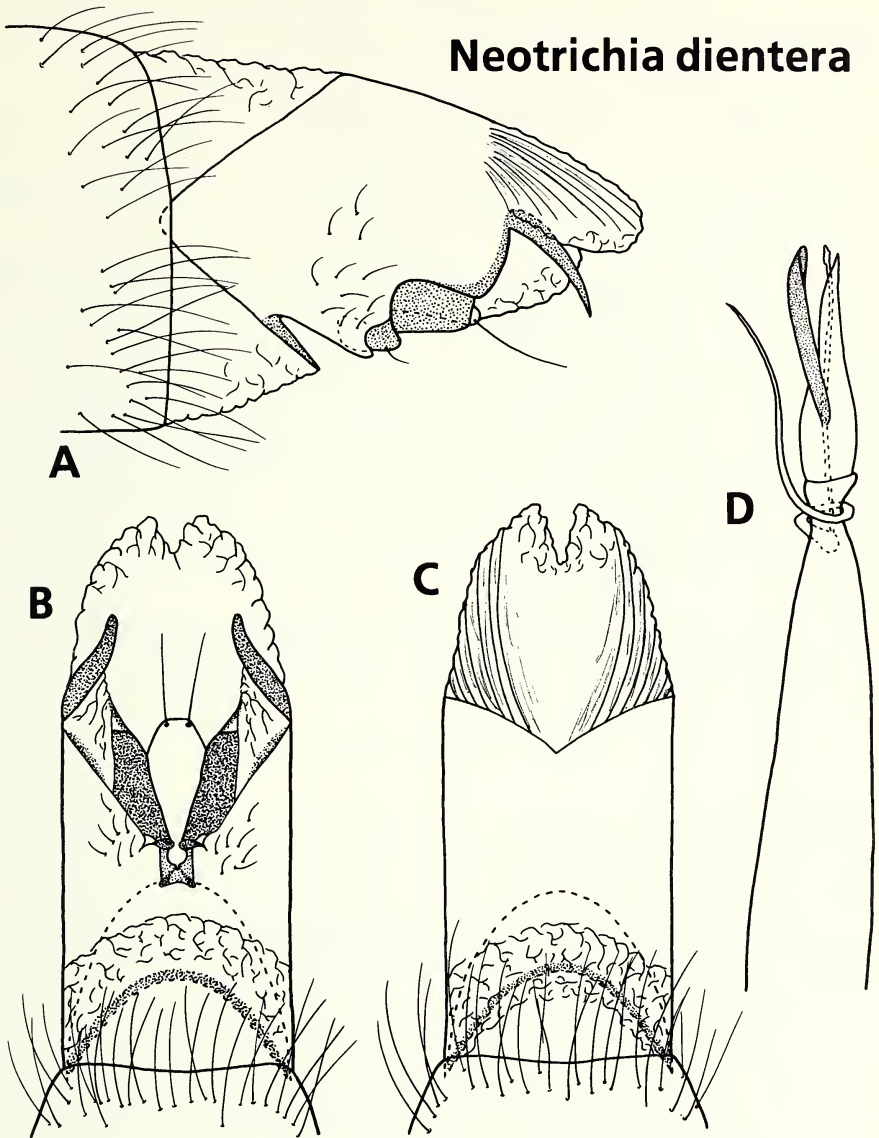


Fig. 5. *Neotrichia dintera*. Male genitalia: A, lateral; B, ventral; C, dorsal; D, phallus, dorsal.



*Etymology.* Spanish, toothlike, referring to the sclerotized lateral spine of the ninth segment.

***Neotrichia botonia*, new species**

Fig. 6

*Diagnosis.* In many respects this species is similar to *N. dientera*. It is easily separated by the posteroventral elongation of the ninth segment and the numerous ventral lobes adjacent to the inferior appendages.

*Description.* Male. Length 1.7 mm. 18 antennal segments. Brown in alcohol. Ninth segment in lateral view with two thin lateral processes on posteromesal margin, inner process about  $\frac{1}{3}$  length of outer process, posteroventral margin produced as a triangular process extending beyond the inferior appendages; in ventral view these lateral processes appear as six elongate lobes. Segment X partially fused with IX, membranous with many narrow longitudinal folds. Subgenital plate short and wide in ventral aspect, slightly rounded apically, bearing two elongate, heavy setae. Inferior appendages narrow and curving upward in lateral view; in ventral view fused mesally, triangular apically. Phallus with distal portion divided, sclerotized lateral process narrowing to acute apex with small spine near base, central tube widening at apex with sclerotized ejaculatory duct protruding; paramere encircling shaft and extending posteriorly.

*Type material.* Holotype. Male, Venezuela, Territorio Federal Amazonas, San Carlos de Río Negro, 1°56'N, 67°03'W, 13–17 December 1984, R. L. Brown.

*Etymology.* Spanish, knobby, referring to the ventral lobes of the ninth segment.

***Neotrichia negroensis*, new species**

Fig. 7

*Diagnosis.* This species is similar to *N. lobata* Flint in the general plan of the genitalia, particularly the phallus. The inferior appendages in *N. negroensis* are not bifid as they are in *N. lobata* and the lateral margin of the ninth segment is produced as a large lobe.

*Description.* Male. Length 1.8 mm. 18 antennal segments. Brown in alcohol. Ninth segment in lateral view with posteromesal margin produced as a large, lateral, rounded lobe, posteroventral margin produced as two narrow projections, each bearing setae, the upper twice as long as the lower; in dorsal view, lateral lobes narrow and heavily setose. Segment X elongate and fused with IX, lightly sclerotized laterally, membranous mesally and deeply incised. Subgenital plate in lateral view narrowing to an acute apex; in ventral view rectangular with mesal point apically, pair of heavy setae on ventral lobes. Inferior appendages darkly sclerotized, in lateral view narrowing from base to acute apex; in ventral view wide basally, with small seta bearing lateral lobes, fused mesally, tapering apically. Phallus with distal portion slender, widened base with three sclerotized spines; paramere partially encircling shaft and extending posteriorly.

*Type material.* Holotype. Male, Venezuela, Territorio Federal Amazonas, San Carlos de Río Negro, 1°56'N, 67°03'W, 6–12 December 1984, R. L. Brown.

*Etymology.* Named for the Río Negro.

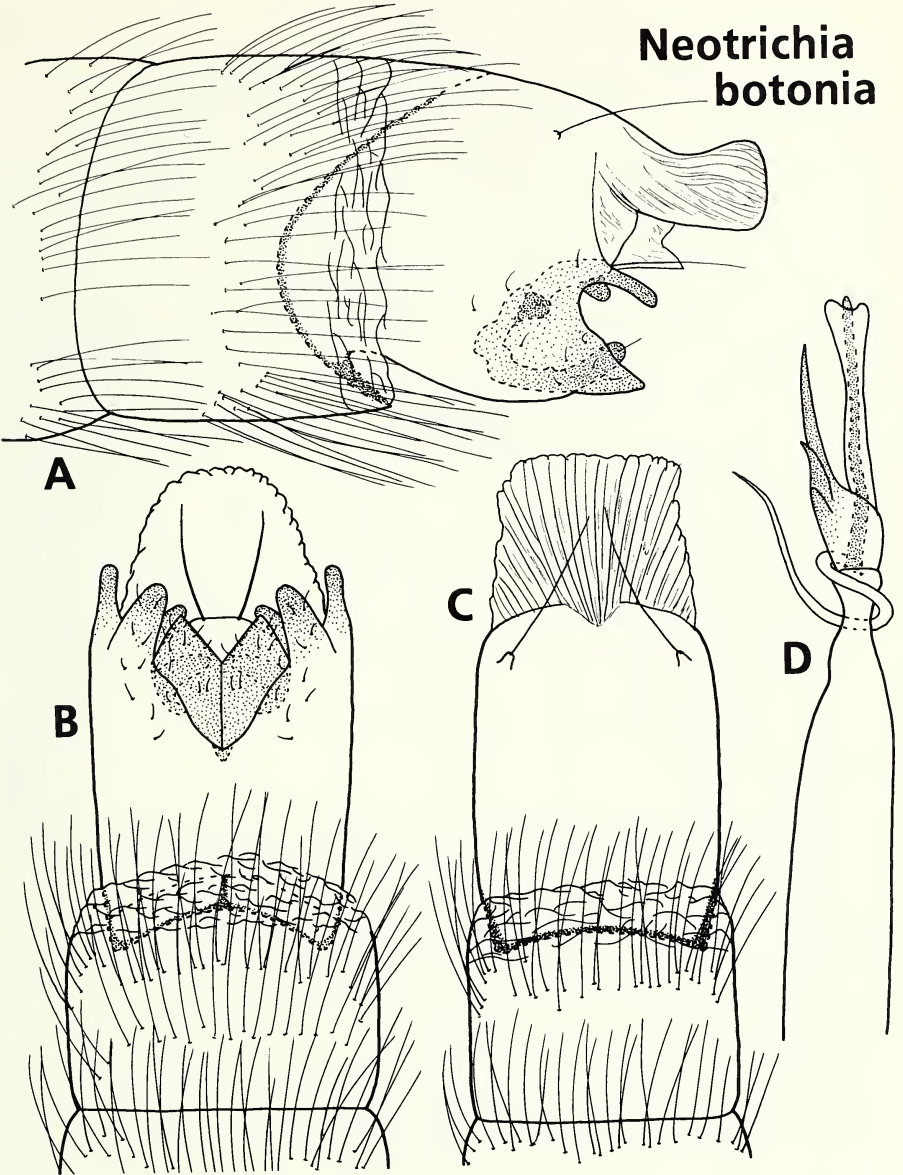
**Neotrichia  
botonia**

Fig. 6. *Neotrichia botonia*. Male genitalia; A, lateral; B, ventral; C, dorsal; D, phallus, dorsal.

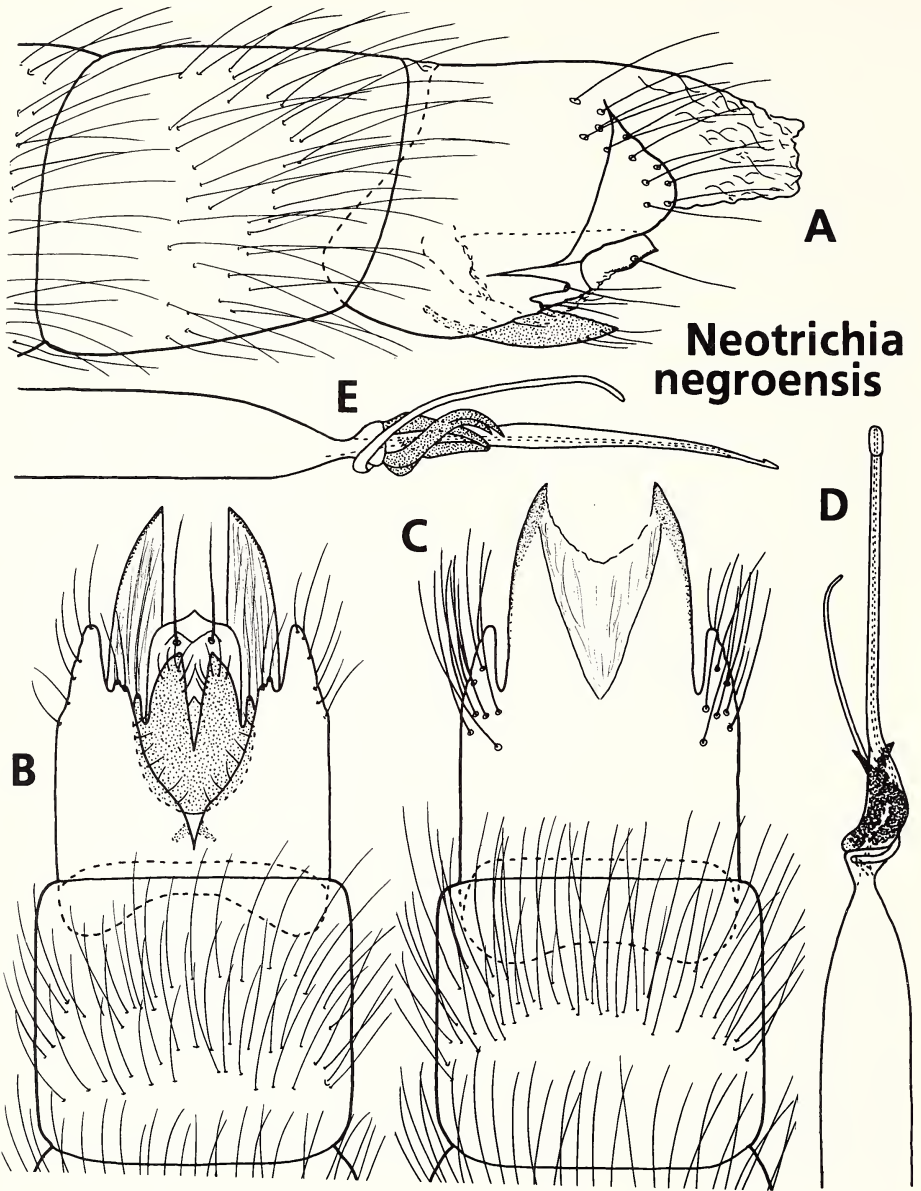


Fig. 7. *Neotrichia negroensis*. Male genitalia: A, lateral; B, ventral; C, dorsal; D, phallus, dorsal; E, phallus, lateral.

***Neotrichia flowersi*, new species**

Fig. 8

*Diagnosis.* This species has some similarity to *N. cuernuda* and *N. lobata* Flint in the bifid inferior appendages. However, these appendages are more elongate in *N. flowersi*.

*Description.* Male. Length 1.5 mm. Antennae broken. Brown in alcohol. Ninth segment in lateral view with posteromesal margin produced as a rounded lateral lobe; anterior margin tapered to acute apex and extending midway into segment VIII; bracteoles posteroventrally, elongate and thin, slightly widened apically and rounded in lateral view; in dorsal and ventral views slender and curving inward. Segment X fused with IX, narrow dorsally with shallow emargination apically, pair of small dorsal lobes, each bearing seta. Subgenital plate in lateral view with apex forming sclerotized, posteriorly directed point; in ventral view truncate with sinuate distal margin. Inferior appendages bifid; outer, ventral portion thin and elongate in lateral view; in ventral view fused mesally, diverging and tapering apically; inner, dorsal portion thin and about  $\frac{3}{4}$  length of ventral portion. Phallus with distal section lightly sclerotized, pair of small spines laterally near apex, darkly sclerotized protuberances subapically; paramere nearly encircling shaft and extending posteriorly.

*Type material.* Holotype: Male, Panamá, Bocas del Toro Province, Quebrada Canza at pipeline road, 90 m, 18 May 1985, R. W. Flowers.

*Etymology.* Named in honor of the collector Dr. R. Wills Flowers who has made many contributions to our knowledge of the Neotropical fauna.

***Neotrichia colombiensis*, new species**

Fig. 9

*Diagnosis.* In most aspects of the genitalia, this species resembles *N. noteuna* (Mosely). It differs in the short ventral process of the subgenital plate, emarginate tenth tergum, and structure of the phallus.

*Description.* Male. Length 1.5–1.7 mm. 18 antennal segments. Brown in alcohol. Ninth segment in lateral view sinuate on posterior margin, narrowing anteriorly and extending into segment VII; bracteoles posteroventrally, elongate and thin, rounded apically. Segment X fused with IX, deeply emarginate distally with pair of long, thin lateral lobes dorsally, each bearing seta. Subgenital plate darkly sclerotized; thin and elongate in lateral view with small ventral point at midlength; in ventral view rectangular, deeply incised apically, pair of small setae ventrally near apex. Inferior appendages narrow in lateral view, particularly near apex, serrate on dorsal surface at midlength; in ventral view wide basally, angled on mesal margin at middle, tapering to blunt apex. Phallus with sclerotized distal portion divided subapically to form short and long acute processes; paramere encircling shaft and extending anteriorly.

*Type material.* Holotype: Male, Colombia, Antioquia Department, Quebrada la Jimenez, Sopetrán, 780 m, July 1983, U. Matthias. Paratypes: same data as holotype, but September 1983, 1 male, 1 female.

*Etymology.* Named for Colombia.



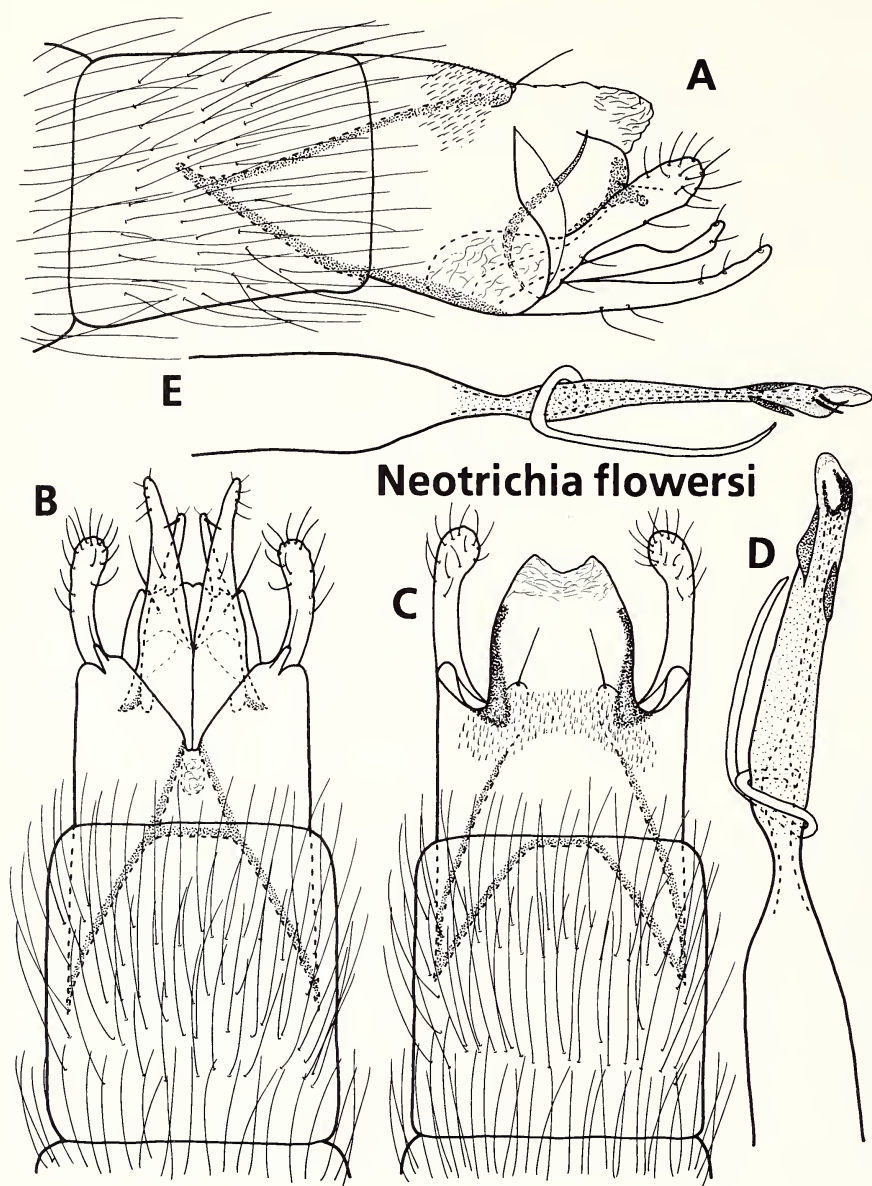


Fig. 8. *Neotrichia flowersi*. Male genitalia: A, lateral; B, ventral; C, dorsal; D, phallus, dorsal; E, phallus, lateral.



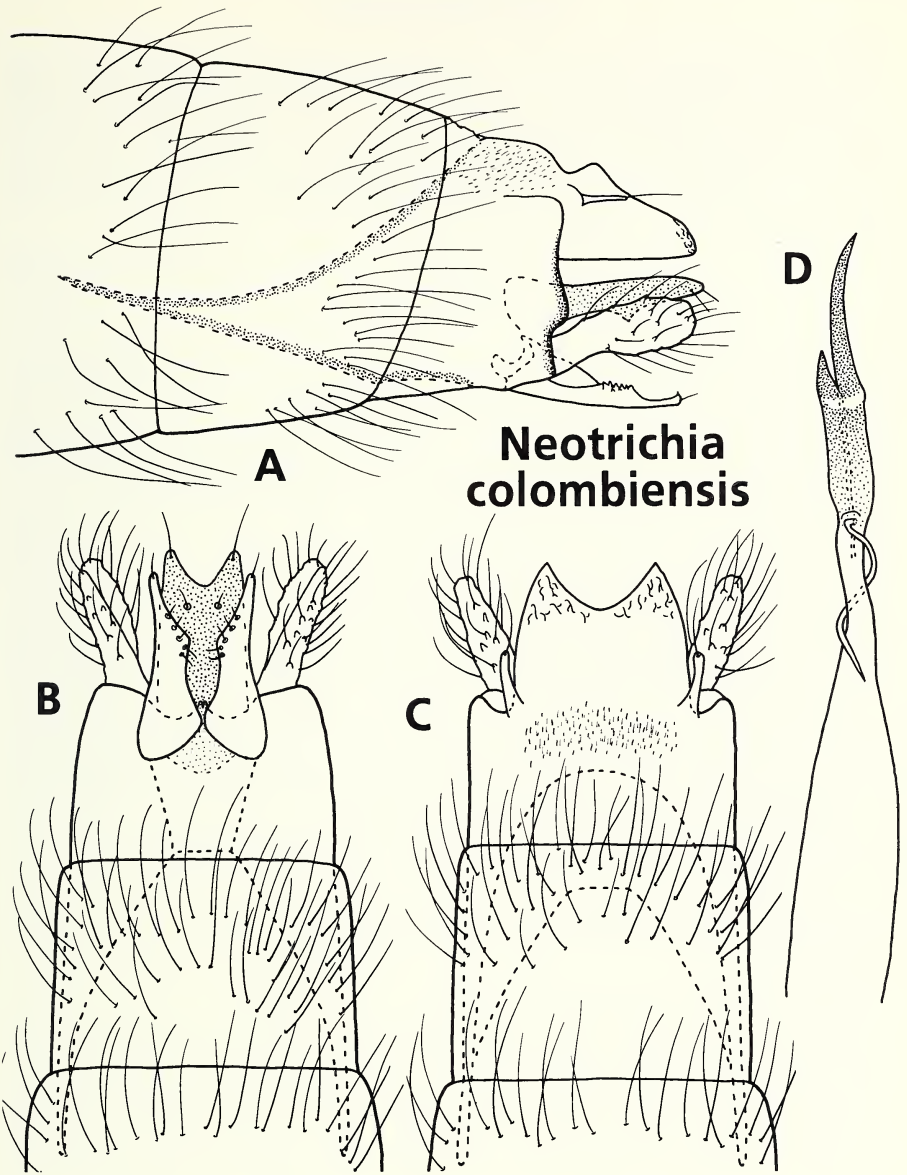


Fig. 9. *Neotrichia colombiensis*. Male genitalia: A, lateral; B, ventral; C, dorsal; D, phallus, dorsal.

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## LITERATURE CITED

- Angrisano, E. B. 1986. Nuevas especies de Hydroptilidae argentinos (Trichoptera). Rev. Soc. Entomol. Argentina 43:1-5.
- Botosaneanu, L. 1980. Trichoptères adultes de Cuba collectés par les zoologistes cubains (Trichoptera). Mitt. Münch. Entomol. Ges. 69:91-116.
- Bueno-Soria, J. and S. W. Hamilton. 1986. Estudios en insectos acuáticos. VI: Cinco especies nuevas de tricópteros de México (Trichoptera: Polycentropodidae: Hydroptilidae; Hydroptilidae). An. Inst. Biol. Univ. Nal. Autón. México, Ser. Zool. 2:299-310.
- Flint, O. S., Jr. 1980. Studies on Neotropical caddisflies. XXVI: New species from Argentina (Trichoptera). Rev. Soc. Entomol. Argentina 39:137-142.
- Flint, O. S., Jr. 1982. Studies of Neotropical caddisflies. XXXI: Five new species from Argentina (Trichoptera). Entomol. News 93:43-47.
- Flint, O. S., Jr. 1983. Studies of Neotropical caddisflies. XXXVIII: New species from austral South America (Trichoptera). Smith. Contr. Zool. 377:1-100.
- Harris, S. C. 1985. New Hydroptilidae (Trichoptera) from Alabama. J. Kansas Entomol. Soc. 58:248-253.
- Kelley, R. W. and S. C. Harris. 1983. New Hydroptilidae (Trichoptera) from Alabama and South Carolina. Entomol. News 94:181-186.
- Malicky, H. 1980. Vier neue Köcherfliegen von der Insel Guadeloupe (Kleine Antillen, Mittelamerika) (Trichoptera). Entomofauna 1:219-225.
- Marshall, J. E. 1979. A review of the genera of the Hydroptilidae (Trichoptera). Bull. British Mus. (Natur. Hist.) Entomol. 39:135-239.

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